

Release Notes

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Product: Driver for Linux
Version: FC and FCoE version 8.2.8.64
NIC version 2.103.397.0
iSCSI version 2.103.397.0

This document describes the new features, resolved known issues and current known issues associated with this driver build release. For the latest product documentation, go to www.Emulex.com. If you have any questions or require additional information, contact an authorized Emulex Corporation technical support representative.

New Features in the Driver for Linux

1. **Added support for the OneConnect™ OCe11102 UCNA.**
The OneConnect OCe11102 Universal Converged Network Adapter (UCNA) is officially supported in this release.
2. **Heartbeat timer now set to off by default.**
3. **Implemented new SLI-4 initialization procedures based on if type.**
4. **Implemented the Fibre Channel (FC) and SLI asynchronous event handlers.**
5. **Added support for the ELS RRQ command.**
6. **Added VFI and VPI initialization for the physical port (new SLI-4 hardware FC support).**
7. **Implemented the READ TOPOLOGY mailbox command and added a new speed definition.**
8. **Implemented doorbell register changes for new hardware support.**
9. **Implemented the new SLI-4 SLI INTF register definitions.**
10. **Added PCI ID definitions for new hardware support.**
11. **Added support for the new SLI-4 WQE.**

Resolved Issues in the Driver for Linux

1. **lpfc_get_scsi_buf_s4 command no longer hangs system.**
Calling the `lpfc_get_scsi_buf_s4` command would cause the system to hang. This issue has been corrected.
2. **RRQ active now set properly for target aborted I/O.**
The RRQ active setting was missing for target aborted I/O. This issue has been corrected.
3. **Unexpected error no longer occurs during reboot of OneConnect UCNAs.**
An unexpected error was occurring when the OneConnect UCNA was rebooted. This issue has been corrected.
4. **Driver no longer aborts FDISC shortly after transmission.**
The driver was aborting FDISC commands shortly after sending them out when the last Clear Virtual Link (CVL) was received by the driver. This issue has been corrected.
5. **NULL vport dereference no longer causes system crash.**
A NULL port dereference was causing the system to lock up. This issue has been corrected.
6. **Kernel panic no longer occurs in lpfc_sli_get_sgls.**
A kernel panic may have occurred in the `lpfc_sli_get_sgls` command. This issue has been corrected.

7. **NULL pointer dereference no longer occurs during memory allocation failure.**
When the `lpfc_create_vport_work_array` returned NULL, the driver would cause a NULL pointer dereference during a memory allocation failure, which caused the system to lock up. This issue has been corrected.
8. **Remote SLI-4 firmware download now transmits data properly.**
There was an issue with the remote SLI-4 firmware download data not being transmitted. This issue has been corrected.
9. **Driver now logs into FDMI DID properly after link bounce.**
When FDMI_ON is enabled, the driver would successfully log into the FDMI_DID. However, after resetting the port link, the driver would fail to log into the node and the NDLP list would increase in value because a new NDLP was allocated. This issue has been corrected.
10. **Driver now properly handles CVL after nameserver PLOGI timeouts.**
If three consecutive PLOGIs to the nameserver failed, the driver set the port state to `LPFC_VPORT_FAILED`. The driver would then ignore the CVL if the port state was set to `LPFC_VPORT_FAILED`. This issue has been corrected.
11. **Security mailbox commands now lock properly.**
There was a locking issue with the security mailbox commands. This issue has been corrected.
12. **Handling of SLI-4 unsolicited ELS commands and ECHO response now works properly.**
A regression error was occurring during the handling of ECHO response support and SLI-4 unsolicited ELS Read Timeout Value (RTV) and Read Link Error Status Block (RLS) commands. This issue has been corrected.
13. **Driver properly handles devloss timeout now during various phases of FIP engine state transactions.**
The driver would leave the FCF/VPI registered even after an FCF dead event and, following rediscovery mailbox command scanning, the driver did not find any new valid/available FCF records. This issue has been corrected.
14. **Driver no longer locks up during controller failover testing due to NULL pnode dereference.**
The driver would cause the system to lock up during controller failover testing due to it dereferencing a pnode without verifying if the pnode was valid. This issue has been corrected.

Known Issues in the Driver for Linux

1. **PCI Hot Plug may cause applications to malfunction.**
Performing a PCI Hot Plug may cause the OneCommand Manager application or other third-party applications that use the Emulex libraries (i.e. HBAAPI) to behave unpredictably or malfunction.
Workaround:
 1. Stop all applications that are accessing LPFC's HBAAPI interface (OneCommand Manager application or third-party applications) before performing PCI Hot Plug of an LPFC adapter. Use the following command to stop the OneCommand Manager application:

```
/usr/sbin/ocmanager/stop_ocmanager
```
 2. Perform the PCI Hot Plug of the adapter.
 3. Restart the application.
2. **Deleting virtual ports or performing a PCI Hot Unplug may result in SCSI errors.**
When you delete a virtual port via the sysfs interface or perform a PCI Hot Unplug of an Emulex adapter, the kernel may report one of the following errors:

```
kernel: Synchronizing SCSI cache for disk  
kernel: FAILED  
or  
SCSI error: return code = 0x00010000.
```

Workaround: These messages do not indicate a functional failure and can be ignored.

3. **Port is disabled on system boot or HBA reset if authentication is enabled.**

When authentication is enabled and the host is connected to a Cisco switch with firmware rev 3.1(3a), and after system boot or HBA reset, the switch may detect a false authentication failure and disable the port.

Workaround: Disable and then re-enable the port from the switch management GUI. The actual fix was provided by Cisco in the 3.4 switch firmware release in the Spring 2008.

4. **LILO Boot Loader is not supported for i386 and x86_64 architectures.**

The LILO Boot Loader on i386 and x86_64 architectures is not supported for this driver stream. After the LILO boot loader is used, the LPFC driver package is installed and upon a reboot, an incorrect initial ramdisk will be used. The system might not boot correctly.

Workaround: Use the GRUB Boot Loader. GRUB works correctly with the driver package's installation script. GRUB is the default boot loader of most of the Linux distributions. LILO is an older boot loader used on i386 and x86_64 architectures only.

5. **Issue with the LPFC module order in the INITRD_MODULES list.**

On the SLES11 system, if another SCSI driver such as aic79xx, is loaded immediately after the LPFC driver through the initrd image, an interruption might occur in the SCSI mid-layer discovery process on the LUNs connected to LPFC's Fibre Channel. This interruption can prevent the release of the SCSI discovery reference count and the LPFC driver cannot unload.

Workaround: Do not add SCSI drivers immediately after the LPFC module in the INITRD_MODULES list.

6. **Deleted virtual ports may appear to be mounted, but are inaccessible.**

While Emulex provides management utilities to enable you to delete virtual ports, the LPFC driver cannot detect whether devices accessed through a virtual port are in use. You can delete a virtual port even when devices accessible through the virtual port are mounted or when I/O is outstanding to the device. If file systems are mounted on a virtual port and that virtual port is deleted, the file systems still appear to be mounted but are not be accessible.

Workaround: Before deleting virtual ports, prepare the system affected by unmounting all the devices accessible through the virtual ports, and verifying that there is no outstanding I/O.

7. **4 Gb/s HBAs in virtualized environments that use Direct I/O or SFPT do not initialize.**

Default driver configuration fails to initialize 4 Gb/s adapters in virtualized environments that use Direct I/O or SFPT(Storage Fixed Pass through) .This may result in a system hang or uninitialized LPFC adapter in Intel VT-d and AMD-V IOMMU systems.

Workaround: Load the LPFC driver with the following driver parameters set:

```
lpfc_hostmem_hgp=1
lpfc_sli_mode=2
```

For example: # modprobe lpfc lpfc_hostmem=1 lpfc_sli_mode=2

Note: A side effect of this workaround is that virtual ports are no longer be supported by the LPFC driver when lpfc_sli_mode is set to 2.

8. **lspci Utility displays "Device 0704" error message for OneConnect Universal CNAs.**

On the SLES11 distribution kernel, the output of the Linux distribution lspci utility incorrectly identifies the OCe10100 OneConnect Universal CAN as unknown "Device 0704". For example,

```
07:00.2 Fibre Channel: ServerEngines Corp. Device 0704 (rev 01)
```

Workaround: There is currently no true workaround for this problem. The Linux distribution lspci utility on SLES11 distribution kernels does not yet recognize the OCe10100 OneConnect Universal CNAs. Follow-on distribution kernels will include an updated lspci utility capability which will correctly identify and display the OneConnect Universal CNAs.

9. **Interrupt mode is incompatible with Emulex HBAs on SLES11 running on some server platforms.**

Emulex has found that on SLES11 running on some server platforms, INTx interrupt mode operation is not compatible with Emulex HBAs. The default interrupt mode for the LPFC driver is INTx, but when running on some systems with the SLES11 OS this interrupt mode is not operating correctly. This issue has been observed on PCI-X and PCIe x4 slots only. The user visible symptom is that no targets or devices will be seen through the FC HBAs, and the following message will be posted on the /var/log/messages file by the LPFC driver: "Mailbox command x33 timed out".

Workaround: To work around this issue the user can do either of the following:

- Move all Emulex PCIe cards to the x8 slots if there are enough x8 slots and no PCIx HBAs in this system
- Use MSI instead of INTx interrupt mode for the LPFC driver. To do that a user should set the LPFC driver "lpfc_use_msi" parameter to 2.

For more information on how to set LPFC driver module parameters, refer to the LPFC driver user manual.

10. **Potential loss of SCSI connections due to FCF Failover with Cisco FCoE switch.**

It was discovered that an issue with Cisco Nexus 5000 series FCoE switch firmware 4.1(3)N2(1) or earlier, in NPV mode, will potentially cause loss or interruption of SCSI connections when used with the Emulex OneConnect UCNAs. The switch incorrectly sends out Discovery Advertisement to All-ENode-MACs from the FCF MAC with which the FC uplink was down. The end result is that sometimes the UCNA will hang on to an offline FCF or experience back-to-back FCF failover and it will potentially lead to Linux SCSI mid-layer devloss timeout.

Workaround: It has been verified that Cisco's 4.2(1)N1(1) release has fixed the issue. We recommend that you upgrade your Cisco Nexus 5000 series FCoE switch firmware to 4.2(1)N1(1) or later to avoid this problem. If you decide to use 4.1(3)N2(1) or earlier firmware with your Cisco Nexus 5000 series FCoE switch and this issue is encountered, try increasing the FC transport dev_loss_tmo parameter to 60 sec. This can be accomplished by one of two ways:

- Update directly the FC transport dev_loss_tmo parameter. For example:

```
# echo 60 > /sys/class/fc_remote_ports/rport-3:0-1/dev_loss_tmo
```

- Update the LPFC driver's lpfc_nodev_tmo parameter. For example:

```
# echo 60 > /sys/class/scsi_host/host3/lpfc_nodev_tmo
```

11. **In-band management connection loss during FCF failover with a Brocade FC switch.**

During FCF failover from one FC uplink to another in configurations with Cisco FCoE switch in NPV mode and Brocade DCX Director FC switch with firmware 6.1.1a, it has been observed that there can be cases where the OneConnect UCNA symbolic node names of the FCoE UCNA interfaces involved in the FCF failover can disappear. This is observed from the OneCommand management application, when the in-band communication from one of the UCNAs to the other involved in the FCF failover is lost.

Workaround: There is currently no workaround for this issue. Although all the OneConnect UCNAs failed over successfully for fabric logging and target rediscovery, there were intermittent problems with FCF failover from one FC uplink to another because occasionally the Brocade DCX Director FC switch failed to establish the initiator-to-initiator forwarding with the UCNAs involved in the failover. This is based on the requirement that the FC switch should forward the initiator-to-initiator I/Os received from the FCoE uplink back into the same FCoE uplink. This issue has been observed with Brocade DCX switch with firmware 6.1.1a.

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